Development of the genital ducts

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Last update: Monday, 19 Dec 2022 at 7.46 pm.

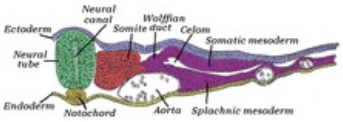
This article has been translated from WikiSkripta; ready for the **editor's review**.

Mesonephric (Wolff's) and paramesonephric (Müller's) ducts are involved in the development of the genital ducts. Both occur in both male and female embryos.

An important role is also played by **hormonal influence**. In men, mesonephric ducts develop later, paramesonephric ducts disappear. It's the opposite for a woman.

Mesonephric and paramesonephric ducts

- **Mesonephric ducts** arise from intermediate mesoderm, are blind in the cranial sections and open caudally into the cloaca.
- **Paramesonephric ducts** are formed lateroventrally from the Wolffian ducts by absorption of the surface epithelium of the mesonephric bar, i.e. from the lateral mesoderm. The Müllerian ducts open cranially into the abdominal cavity and caudally also open into the cloaca. During its course, the two ducts cross and the paramesonephric eventually opens more medially.



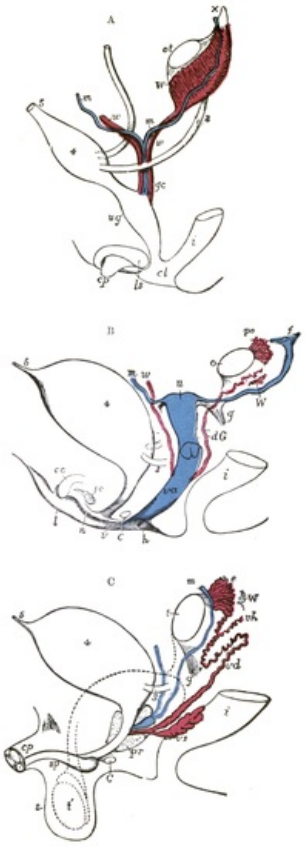
Hormonal influence

Male

In men, under the influence of testosterone produced by Leydig cells, Wolffian ducts are stimulated, which transform into epigenital mesonephric ducts. These ducts further differentiate into '*ductulli efferentes testis*. The remainder of the duct becomes the ductus deferens, ductus epididymidis, ductus ejaculatorius, and seminal vesicle ducts.

The ducts that do not connect to the rete testis eventually disappear, leaving only a rudiment called the ``paradydimis*. The rudiment of the cranial end of the Wolffian duct, which is above the testicle and does not participate in development, is called the* appendix epididymidis*.*

Sertoli cells producing **anti-müllerian hormone**' act on the regression of the paramesonephric ducts. After the disappearing paranephric duct, only the *appendix testis* and the *utriculus prostaticus* remain. Further, testosterone is converted by convertase into **5-α-dihydrotestosterone**, which is involved in the differentiation of the male type of the external genitalia.



Woman

There is not a single hormone that works in men in women. Therefore, the influence of estrogens, under which the female ducts and external genitalia are formed, prevails.

Estrogens lead to stimulation of the paramesonephric ducts. The upper two thirds give rise to the fallopian tubes, the lower third gives rise to the womb and the upper part of the vagina. The connection of the lower parts of the Müller ducts creates the uterovaginal canal. At first, it does not open into the cloaca, but only touches its epithelium with its blind end. The entoderm epithelium of the urogenital sinus responds by proliferation and the sinovaginal plate, or vaginal plate, is formed. A new lumen is created in it, which lengthens and connects to the lumen of the uterovaginal canal.

After regressing the Wolffian duct, the ``paraoophoron *and the* ``*epoophoron,* which are disappearing epigenital ducts that do not connect to anything, may persist in the cranial part. Next, Gartner's cysts appear in the vaginal wall.

Congenital defects of the uterus and vagina

- **Uterus duplex** - disorder of connection of paramesonephric ducts,
- **uterus arcuatus'** - slight depression in the middle plane due to incomplete fusion of the ducts,
- *uterus bicornis* - two horns of the uterus opening into the common vagina,
- *atresia cervicis uteri'* - complete or partial atresia of one Müllerian duct,
- *atresia cervix uteri'* - occurs when both sides are affected, there is no lumen,
- **atresia vaginae** - there is no fusion of the sinovaginal bulbs, a double vagina is formed. Cervix uteri opens into a small vaginal pouch.

Links

Related Articles

- Ontogeny of sex in mammals
- Development of the genitourinary system
- Development of the reproductive system
- Male Genital System
- Genital tract in male
- Female genitalia
- Congenital developmental defects
- Developmental defects of the uterus and vagina

External links

- wiki.medvik.cz (http://wiki.medik.cz/wiki/V%C3%BDvoj_pohlavn%C3%ADho_syst%C3%A9mu)

- kittanya.blogspot.cz (http://kittanya.blogspot.com/2010/11/vyvoj-vyvodnych-cest-genitalnich.html)

References

- SADLER, T and Jan LANGMAN. Langman's medical embryology. 10th ed. /. Philadelphia: Lippincott Williams, c2006, xiii, 371 pp. ISBN 0-7817-9485-4.